

1 MAY 1957

data

GOVERNMENT RESEARCH AND DEVELOPMENT DIGEST

VOL. 2, NO 5



in this issue . . .

IONIC DRIVE

data

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DATA provides a rapid information link between industry and government. It is designed to give readers a quick scan of the latest developments in the military services and government agencies on a wide range of topics. Speeches and interviews of special significance are covered and reviewed by DATA.

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DATA BRIEFINGS

WORDS TO READERS — Gen. H. F. Gregory

CHARTS & REPORTS

MAGAZINE REVIEWS

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briefings!

DATA PREDICTS:

Next SAC Commander will be Gen. Edwin W. Rawlings, present C. O. of AMC.

USAF will soon fly the North American X-15 rocket research aircraft for crack at world's fastest manned flight and thermal barrier speed studies. We look for the X-15 to hit 3000 mph with Capt. Iven C. Kinchelo, former 1650 mph X-2 pilot, as the jockey. May top 100,000 ft.

Chance Vought F8U-3 will get pure rocket with 8000-pound thrust added boost to supplement J-75 Pratt & Whitney. Armament will be folding fin SIDEWINDERS in internal store or SPARROW III near nose. F8U-3 will differ from -1 primarily in odd-looking ventral fins which slant down from beneath now-no-dihedral horizontal stabilizer to provide more directional stability at extremely high altitudes and speeds capable with this airplane. Ventral fins crank up for landings.

CHANGES FOR CONTRACTORS:

Technical offices in the Navy will get more say on awarding of contracts. SECNAV Instruction 4255.1 dated 28 March 1957--and just released--gives more authority to Tech Office, rather than Contract Officer. **LOW BID NEED NOT COUNT.** Excerpts: "Contracts to be awarded to those firms which have highest competence. . . based on comparative technical ability. . . advance estimates of cost are not valid indicators. . . selection of best qualified firm primarily the responsibility of the cognizant technical personnel." Also, ". . . in view of the exploratory nature of research and development and the uncertainties inherent in its successful accomplishment, cost-reimbursement type contracts shall, as a policy, be utilized in awarding such contracts."

The Bureau of Ships, reported as Navy's hardest dealing agency, is revamping its contract procedures to stop the exodus of contractors to BuAer, BuOrd, BuSandA and all the other Bu's where contractors had easier dealings. Look for more BuShips jobs for small business.

CHANGES FOR JOURNALISTS:

Expect a better open-door policy in Air Force public information policies. Brig. Gen. Arno H. Luehman will be director of Information Services USAF. He was disciple of Maj. Gen. "Sory" Smith, probably most open minded information chief the Air Force ever had. AF Info will establish one new office, revamp present offices, under Luehman.



Gen. H. F. Gregory

1 May 1957

Special Message to Readers of DATA Magazine
from Commander, AFOSR (ARDC).

Dear DATA Reader:

Today the laboratories of industry and those of the campus are full partners of the Air Force in the job of deterring a potential enemy from offensive action against the United States or its allies. The mission of the Air Force Office of Scientific Research is to help the Air Force to discover and use these resources to the fullest possible extent.

AFOSR is a component of the Air Research and Development Command, but is unique among the centers of ARDC in two ways:

1. It does very little research of its own. Our method of operation is to encourage scientists to send us proposals for investigation in any field of knowledge, and to select for financial support those with greatest potential Air Force interest.
2. It is concerned primarily with exploratory, rather than supporting research.

Perhaps I should clarify the second point: Supporting research attempts to supply answers to specific questions which arise in trying to meet a specific ARDC technical requirement. Exploratory research expands our total range of knowledge without regard to specific questions or specific problems. ARDC support of exploratory research is based on the hypothesis that very few new scientific facts can be uncovered which will not have some impact on the offensive or defensive capabilities of the Air Force.

By the same token, I cannot conceive of any new scientific fact being uncovered which would not have some impact on some industry, most probably on several industries. The recent growth of industrial research laboratories indicates that more and more industrialists have come to realize the potential value of new ideas. The flourishing interest of industry in the work of AFOSR is another indicator of the practical value of exploratory research.

MESSAGE TO READERS

Industry's interest in our work has become evident in three ways: First, more industrial and commercial journals are covering and reporting our progress. Second, more large and small industrial organizations are sending us proposals for unilateral or joint support of research projects. Third, industry is joining with us in encouraging the exchange of research information, a recent example of which was the Astronautical Symposium last February which was jointly sponsored by AFOSR and the Convair Division of General Dynamics Corporation.

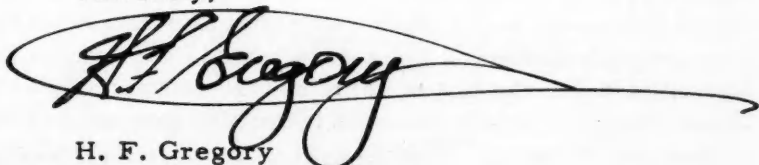
If your industrial laboratory is pursuing or contemplating an investigation which may be of interest to the Air Force, it may be possible for us to form a mutually profitable partnership. All you need to do is send us an informal proposal telling us (a) the line of investigation you want to follow; (b) your proposed contribution in manpower, facilities, and money; (c) your estimate of the financial support desired from us; (d) the estimated period of time needed; and (e) the name of your principal investigator.

In return, the Air Force Office of Scientific Research will (a) assign your proposal for prompt consideration by a staff member and one or more consultants who are technically qualified to appraise it; (b) protect your proprietary interest; (c) give you a definite answer as quickly as possible; and (d) try to guide you to the appropriate Federal agency if it is considered unsuitable for Air Force Support.

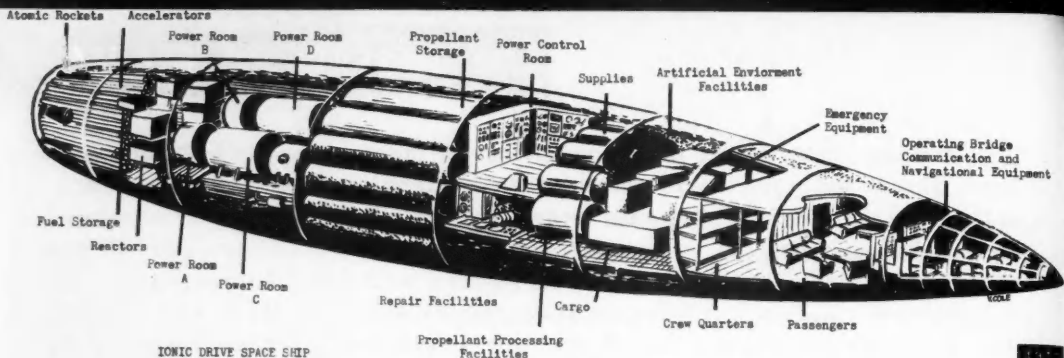
AFOSR now has some 625 contracts in force, over 100 of which are with industrial investigators. We are constantly seeking more new areas to explore, new ideas to exploit, new concepts with which to challenge the "dead ends" of science. If you think you have one for us, please write to me. Address Commander, AF Office of Scientific Research, Air Research and Development Command, Washington 25, D. C.

We are eager to hear from you.

Sincerely,

A large, stylized handwritten signature in dark ink, appearing to read 'H. F. Gregory', with a long horizontal flourish extending to the right.

H. F. Gregory
Brigadier General, USAF
Air Force Office of Scientific Research
(ARDC)



The Air Research and Development Command has recently been announcing ion-propulsion study contracts and supporting contracts concerned with IONIC DRIVE. 1. What is IONIC DRIVE? 2. Why does the Air Force want it? 3. What vehicles will it power?

1. IONIC DRIVE is the propulsion of a rocket by the expulsion of charged atomic particles. The particles, or ions, are accelerated by a series of charged plates that sweep the ionized particles rearward in an ever-increasing force that thrusts the rocket ahead.

2. In an attempt at eliminating the heavy weight requirements of carrying solid or liquid propellant fuels, and also to eliminate the huge fuel to payload requirements of present multi-stage rockets, Air Force scientists have been searching for new fuels and new propulsive systems.

They want a fuel that is easily available--perhaps even on other planets. It must provide a constant, almost indefinite thrust, eliminate the enormous loss of power spent in heat with conventional propulsion systems and achieve true linear propulsion without random sideward pressures. Theoretically, all the above requirements and desires are met in IONIC DRIVE.

3. IONIC DRIVE is a weak but constant force. It is to be used in the frictionless medium of outer space where small forces can provide the moving thrust for a large space vehicle in a similar manner to the way a large ship can be towed on a calm sea with a lightweight line.

Two excellent features of the ionic system are almost limitless increases in speed and low acceleration stresses. In frictionless outer space a vehicle can be accelerated at ever increasing speeds, theoretically at speeds equal to or more than the equal and opposite reaction of the propellant force. Therefore, since ions can move at nearly the speed of light, the space vehicle, too, could conceivably move at that speed which is more than 186,000 miles per second or over 11,160,000 miles per hour.

An ion-powered space vehicle of the type shown above, would carry other propulsion systems--the standard banks of atomic rockets--for in-flight maneuverability and transition flying within atmospheres.

FEATURE

Details of the electronic accelerator are shown in the diagram below. Fundamentally it is a straight-line cyclotron adapted for space flight drive. Accelerator and space ship shown are artist's concepts.

Particles travel in a straight line and receive successive kicks as they pass alternately connected accelerating rings, H, fed with a. c. voltage. An axial magnetic field is provided by a coil, J, to prevent excessive mutual divergence of the ion stream.

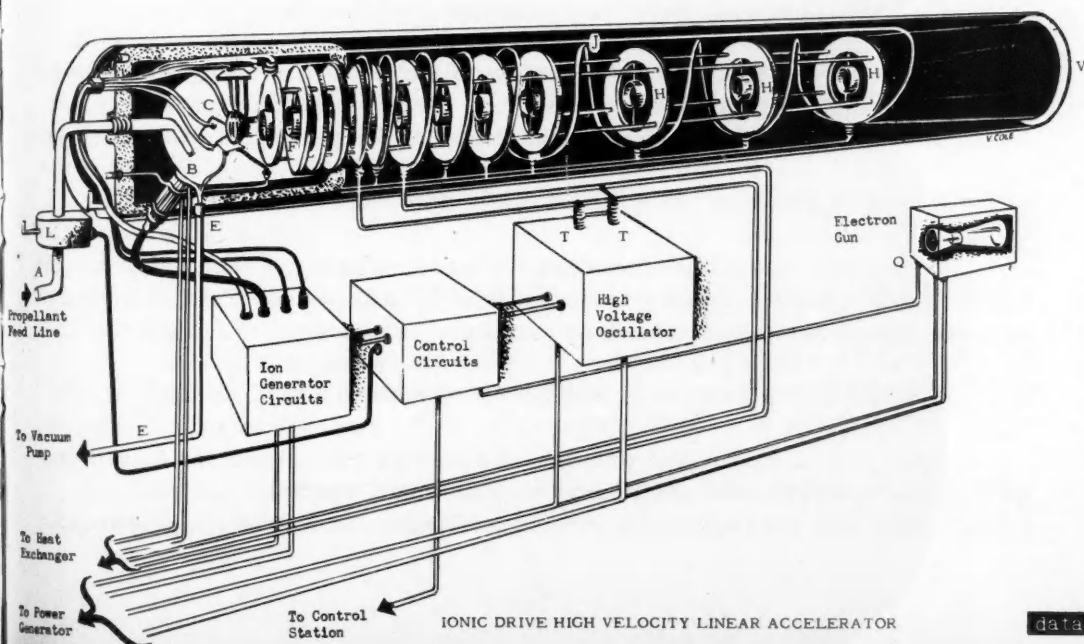
The atomized particles, probably from a heavy isotope of hydrogen--assumed available on almost any planet--are introduced through line A (controlled by valve L), where they are bombarded by electrons from the electron gun, B. Un-ionized particles are drawn out through line E, while the ions are drawn by the accelerating grid and ring, G and F, and guided by deflecting plates D and converging coils C, toward the battery of accelerating rings, H.

Powerful accelerating electrodes, fed by the high voltage lines, T, sweep the ionized particles toward the exit with ever-increasing speed as they pass each electrode, emerging as a high velocity stream, V.

The speeding ions blast into the vacuum of outer space and a small auxiliary electron gun, Q (like a cathode ray tube) is located alongside to counteract build-up space charge due to the departing ions, which would otherwise eventually neutralize the thrust.

Both the heavy ion and the lightweight electrons of the utilized atom are ejected rearward by the charged plates. The union of the broken atomic particles is completed in free space, far behind the rocket vehicle.

///AFOSR, ARDC, D. C. Romick-ARS/



AIR & SPACE

210. NEW WINDSHIELD COATING:

An ice and fog preventative coating for aircraft windshields, giving better visibility than any previous coating, has been developed for the Air Force by the Battelle Institute, Columbus, Ohio, ARDC reports.

The electrically conducting coating, a tin-doped indium oxide film, is the result of research programs outlined by the Materials Laboratory of ARDC's Wright Air Development Center. In addition to its high transparency, a light loss of only 15 percent, the new coating with its low electrical resistance conducts a current that heats the underlying windshield glass, melting ice and dissipating fog.

More information available. Service charge \$1. ///ARDC 0410/

211. ROCKETDYNE GETS ION-PROPULSION CONTRACT:

The Air Force has announced that the Rocketdyne Division of North American Aviation is working on ionic propulsion under USAF contract. Others known to be working on IONIC DRIVE include Convair, Giannini and Avco. Avco has a special contract on the study of magneto hydrodynamics, which involves special research information on ionic propulsion.

For more information and brief graphic analysis of IONIC DRIVE see DATA Feature. ///ARDC 0405 104/

212. "CAT EYE" TO VIEW MARS:

Photographic exposure times can be reduced 16,000 times with the CAT EYE, Air Force light amplifier which will make possible better photographs of the Martian planetary surface as well as other astronomical bodies by shooting photos "between" the tremors in the atmosphere.

More information including fact sheet. \$1. ///ARDC 0412 118/

213. FACT SHEET ON THE REDSTONE MISSILE AVAILABLE:

On April 17 the Department of Defense released a fact sheet on the REDSTONE missile, stating it would soon be utilized in field artillery missile battalions. Fact sheet on request. No charge. ///DOD 0417/

214. EXTERIOR VIEWS RELEASED OF VERTOL TILT-WING:

Until now a classified project, the Vertol convertaplane tilts wing and affixed twin-propellers to rise and descend vertically. Wing and thrust lines are horizontal for cruise. Photos. \$1 for set. ///Navy/

215. MAY 15 TARGET DATE FOR NEVADA TESTS:

The 1957 low-yield nuclear detonation tests in Nevada are expected to get underway about May 15. Tests during this year, known as Operation PLUMBBOB, will also include experiments related to the safety of nuclear weapons during handling and storage.

The first handling and storage safety test was conducted last month (April) but as there were no detonations, no outside effects were discernible. Additional safety tests will be conducted during the summer. ///AEC 1019 0403/

216. AEC PATENTS OFFERED IN SMALL BUSINESS CIRCULAR:

The April issue of the Small Business Administration's Products Lists Circular includes nine recent Atomic Energy Commission patents. Among the AEC patents, which are being offered for commercial developments and distribution, is one for the electrodeposition of uranium. Others include a patent for recovery of metal salts from mixtures, neutronic reactor, method of preparing metals from their halides, two-roller anti-friction latch, a vacuum gauge and a pump cylinder assembly.

Copies of the circular are available at all SBA agency offices, or upon written request to the Small Business Administration, Washington, 25, D. C. ///SBA 330/

217. NUCLEAR ENGINEERING COURSE FOR NAVAL OFFICERS:

The April issue of the Navy's CIVIL ENGINEER CORPS BULLETIN has an article by LT J. C. Ledoux, CEC, USN, first naval officer to go through the curriculum. Ledoux explains the program, administration, selection of students, curriculum and gives an interesting conclusion so that future naval personnel entering the school may be better prepared.

Photo copies of the four-page article are available at a service charge of \$2 through DATA. ///CEC Bulletin 04-20/

218. LIST OF UNCLASSIFIED RESEARCH REPORTS AVAILABLE:

A free price list which catalogs unclassified research reports of the Atomic Energy Commission for sale can be had on request by writing the Office of Technical Services, Department of Commerce, Washington 25, D. C.

The free cumulative listing shows more than 3600 AEC reports. Ask for AEC Research Reports List No. 27. ///Commerce/

COMMUNICATIONS

219. OPERATION SMOKE-PUFF

Operation SMOKE-PUFF will constitute a detailed analysis of the effects of a man-made electron or ion cloud upon high frequency radio signals.

The Air Research and Development Command operation will begin in July of this year at Holloman AFB, New Mexico. Segments of artificial ionosphere will be produced at altitudes of 60 to 70 miles by ejecting varying quantities of gaseous materials from Aerobee rockets into the natural ionosphere.

ARDC gives the following reasons for wanting information from the coming tests: 1. demonstrate "bounce" effect produced by short-lived man-made ionized layers upon radio signals beamed toward them, 2. study night-sky illumination of battlegrounds and cities, 3. receive information to improve reliable long-range radio and TV communications, collect data to be used in the study of ion-engines to propel very high altitude vehicles.

More information. Service charge \$1.

///ARDC 0419 129/

220. NOL BRINGS TRUE MINIATURIZATION ONE STEP CLOSER:

Pure research on semiconductors done at the Naval Ordnance Laboratory in Maryland may open the door to eventual mass production of pocket-size TV cameras and miniaturized electronic gear. Working on germanium--the essential element in a transistor--Drs. Richard L. Petritz and Jay N. Zemel determined for the first time the number, kind and mobility of electrical carriers in a given germanium surface. The use of their apparatus for measuring surface properties should assist in making it possible to produce germanium transistors having greater efficiency at lower cost. The test equipment will also be used to study surface properties of other transistor materials such as silicon.

Photo copy of complete NOL report release \$1. ///NOL 04-1/

221. STEADIER PICTURES FROM NEW MOVIE CAMERA:

Designed and developed in the Photographic Division of NOL, the new camera fits the shoulder like a tailor-made jacket and weighs only 25 pounds. It was developed for taking slow-motion pictures of rapidly moving objects. According to Max Beard, chief of the division assigned the task of designing the new machine, the camera is "...entirely new in development and design."

Photo copy of NOL report release \$1.

///NOL 04-4/

222. NAVY COMBATS CORROSION WITH MINERAL OIL:

For combatting corrosion of laboratory and field test equipment exposed to atmosphere, water or soils, a very thin coating of mineral oil containing a naphthenic sulphonate type of inhibitor applied to metal parts reduces attack to 95 percent efficiency or better, the Navy has found.

Photo copy of complete article \$1. ///12ND BULLDOZER 10415/

223. NUCLEAR SHIELDING IMPORTANT IN NAVY CONSTRUCTION:

Openings in walls or roofs of underground structures for nuclear radiation shielding present special problems and, if not properly detailed, may admit enough scatter or direct nuclear radiation to invalidate completely the most careful shielding computations for the unbreached walls and roofs, according to Cdrs. Arthur B. Chilton and Louis N. Saunders, Jr., of the Navy CEC whose practical considerations are expressed in drawings and graphs in the current CEC BULLETIN.

Photo copy of complete article \$1. ///CEC Bulletin No. 74-3/

224. THE NORFOLK SKIMMER IS SLICK DEVICE:

After seeking for years a cheap means for removing dangerous oil slicks at waterfronts, the Navy has developed the "Norfolk Skimmer"; oil skimmed off remains in tank, can be restored to usable fuel for about one cent a gallon, may soon pay off \$10,000 cost of skimmer. Less economical is sinking the slicks with ordinary sea sand or used foundry core sand coated with crude creosote or asphaltic oils and heated in kiln to about 1000 degrees (F). This "carbonized" sand is spread on the slicks with sand-blasting methods or by hand.

Photo copy of complete article 50 cents. ///All Hands 04-12/

225. SKYLIGHTS SHOULD BE COLORED NAVY SAYS:

Blue and green plastic sheets or panels rather than clear unglazed openings eliminate hot spots of direct sunlight and diffuse light more evenly, a recent BuDocks article reports. Using panels of straight corrugated plastic with blue or green coloring to soften direct sunlight, about 70 percent of the total light was transmitted into the rooms with much more uniform light acceptance and better non-glare working visibility.

Tests were conducted in the roof of a frame steel building at Port Hueneme, California. Photo copy on request \$2. ///CEC Bulletin 7317/

**It's not nailed down,
It's Fansteel 77 Metal**



Show-goers at the Fansteel Exhibit are invariably astonished by the weight of 77 Metal. Many assume that it is actually "fastened" to the display table.



FANSTEEL

Fansteel 77 Metal's startling weight provides the solution to many engineering problems . . . especially those concerning inertia or momentum, counter balancing, vibration control and shielding. Its use is recommended whenever the objective is . . .

Maximum Density in Limited Space

HOW HEAVY? *Twice as heavy as steel, 50% heavier than lead.*
(.613 lbs. per cubic inch.)

HOW STRONG? Tensile strengths to 140,000 psi. Transverse rupture to 270,000 psi. Elongation to 10%.

HOW EASILY MACHINED? Machines like cast iron . . . takes fine finishes, close tolerances.

HOW ECONOMICAL? Made by powder metallurgy of pure tungsten, copper and nickel, waste of materials is limited, machining costs are cut.

Fansteel 77 Metal Is The Ideal Material For Use In . . . *Aircraft aileron counterweights, Rotors, Governors, Balance Weights of all types, Radiation Shielding, Vibration Damping Devices.*

Write for this free booklet



METALLURGICAL CORPORATION

NORTH CHICAGO, ILLINOIS, U. S. A.

226. DATA REDUCTION TIME DECREASED WITH TELEREADER:

Have you ever been confronted with a six-inch stack of photographic data and wondered how you were going to convert it into usable facts and figures in a reasonable length of time? If so, read on. The TELEREADER, a mechanism developed with IBM equipment at the Naval Ordnance Lab, can translate curves, graphs, angles or slopes - any data with X-Y coordinates - and do it 20 times faster than by any conventional method.

The Telereader will produce labeled data points on an electric typewriter, or in the form of an IBM card ready for further numerical analysis or both. The reader records the X and Y coordinates simultaneously, and the results are accurate to five decimal places, dependent, of course, on the accuracy of the input. Angles are recorded to one-tenth of one degree.

For more information write Mr. Hoyt Stevens, Applied Mathematics Division, Naval Ordnance Lab., Silver Spring, Md. He can also suggest ways to record your data so that it can be analyzed quicker and give you more information. ///NOL Report 04-5/

227. USSR COMBINATION COMPUTER:

According to British naval experts, the Soviet Union has developed a combination torpedo and gunnery computer which works out firing data and makes target-finding calculations. The computer is in use on the SKORYI class destroyers. This class of destroyer is known to be equipped with modern target-finding and gun-laying radar for its four 5.1-inch guns. It is also armed with ten 21-inch torpedo tubes.

No additional information.

///Military Review 04-72/

228. ARMY COMBAT SURVEILLANCE GETS NEW CHIEF:

Present head of ACSA (Army Combat Surveillance Agency), Brig. Gen. F. F. Uhrhane, will be replaced this month by Col. Willis Groves, Army R&D specialist coming to the Capital from a Far East tour.

ACSA is a new Pentagon agency consisting of five officers and seven civilians. Mission: Get the weapon on the target in the least amount of time. More specifically: promote and coordinate the production of a combat surveillance system to be used by troop commanders. Equipment test and production as well as technical training for personnel are now the responsibilities of ACSA. Contractors note: ACSA will test and decide when equipment is ready for production, and Army SigCorps will not give contracts until ACSA approves. ///SigC/

229. ARDC OFFICE OF R&D REORGANIZED:

A significant change in the organizational structure of the Office of the Deputy Commander for Research and Development at Headquarters, Air Research and Development Command, has been announced.

The Directorate of Development is being abolished, and four new Directorates are coming into existence. These new Directorates are to have divided among them the seven Divisions that had been operating under the Directorate of Development.

Personnel changes will be the following:

The new Assistant Deputy Commander for Research and Development Control will be Colonel J. V. R. Dickson, former Director of Development.

The new Director of the Aeronautics Directorate is Colonel P. F. Nay, former Chief of the Aeronautics and Propulsion Division.

Colonel G. T. Gould, Jr., presently Chief of Communications and Electronics Division, will direct the Communications and Electronics Directorate.

Colonel P. H. Mitchell to head Directorate of Human Factors, he held similar post earlier.

No changes in top command. Colonel L. B. Williams remains head of Directorate of Research, and Colonel L. M. Taylor will remain in his present post as Director of the Directorate of Engineering.

Complete ARDC report available. Service charge \$1. ///ARDC/

230. CERAMIC COATINGS IN AIRCRAFT ENGINEERING:

Refractory-type ceramic coatings are becoming more popular in protecting exposed parts in high heat aircraft locations. A recent article in AVIATION AGE magazine is worth noting. The article, entitled "How Ceramic Coatings" begins on page 74 of the April issue of the publication and summarizes a recent survey of the National Bureau of Standards which reported creep behavior of ceramic coatings under various stress conditions. ///AV AGE 04-74/

231. MARINE CORPS TESTING EXPERIMENTAL SUMMER SUIT:

The Commandant of the Marine Corps has approved the wear test of an experimental summer weight uniform at Headquarters Marine Corps during the summer of 1957. Color will be traditional Marine Corps green and will be manufactured of material blended of a Dacron-Wool fabric. The Commandant has also made the white cap cover standard, blue cap obsolete. Short sleeve shirts to be in tropics. ///USMC/

MATERIALS

232. AIR FORCE REGS ON LOGISTICS AND SUPPLY:

Two new Air Force regulations are worth noting:

AFR 400-17 dtd 22 March 1957. Logistics. Purpose: This regulation assigns responsibilities within the Air Force for surface delivery and deprocessing of MAP (Military Assistance Program) Grant Aid aircraft. Copies through DATA, 50 cent service charge.

AFR 67-81 dtd 21 March 1957. Supply. Purpose: This regulation establishes criteria for the retention of personal property and the management of material in long supply in the Air Force. It pertains to all centrally procured items. Copies through DATA, 50 cent service charge.
///Air Force Info. 0429 57/

233. TEFLON SUPERIOR TO MICA FOR CAPACITORS, SAYS USAF:

Air Force-sponsored research indicated still another use for versatile Teflon - this one in electronics, where capacitors of the polytetrafluoroethylene material were found superior to those of mica. See special DATA page on Commerce reports to obtain this study.

Teflon, known as the revolutionary dry lubricant and preservative for metals, is finding new uses constantly. DATA has compiled a report on Teflon based on the Bureau of Ships study released internally as BuShips Notice 10350. The DATA study on Teflon is a seven-page mimeographed report which includes (1) a chart of physical properties, (2) thermal characteristics, (3) electrical properties, (4) coefficient of friction in situations, (5) typical applications and other information. Available to DATA readers at \$2 per copy. ///DATA/

234. COTTON INSECT RESISTANCE TO INSECTICIDES PROBLEM:

Build-up of resistance to insecticides in certain cotton insects, now the number-one problem facing cotton entomologists, calls for concerted action by Federal, State and industry groups, a Department of Agriculture spokesman has said. Westward movement of the boll weevil and increased damage by the pink bollworm in western areas also requires attention.
///Agriculture 0305/

235. A RUBBER-COMPATIBLE AND ICE-RESISTANT LUBRICANT:

A low-torque, semi-fluid grease (GLT-700-60) has been developed which is compatible with MIL-P-5516 oil-resistant rubber and has excellent cold weather properties. Photo copies of the complete six-page NRL study available through DATA. \$3 service charge. ///NRL 0416/

236. RADIATION CONTROL AIDED BY NAUTILUS EXPERIMENT:

Studies of radiation exposure aboard the USS NAUTILUS may be the basis of a handbook for the combined medical and engineering endeavors dealing with the problems created by nuclear power. The methods used to test radiation within the submarine and the results will be of much assistance in determining health and safety standards in other areas. ///Lcdr. John H. Ebersole, MC USN, BuMed 0419 674/

237. ARMY CHOW TO GET ATOMIC TREATMENT:

The Army will be used as a collective guinea pig in an effort to illustrate that food preserved by the use of irradiation is safe and that it makes no appreciable difference in the amount of radioactivity incurred. ///Army Medical Corps/

238. ANTI-NERVE DEVICE TO GET MARINE RATING:

Three methods of injecting atropine--a nerve gas antidote--will be tested by the Navy Medical Field Research Laboratory to determine which of the self administered methods is preferable. Similar tests have been made by the Army and the Air Force. When all the results are in, a standardized system will be evolved. ///USMC Info. 0419/

239. GERM WARFARE CAUSED BY KOREAN TICK:

The terrifying and inexplicable symptoms found among UN troops in Korea gave rise to the cry "Germ Warfare". Now it is made known that the bleeding eyes, high fever, and in some cases, internal bleeding from the heart and brain were symptoms of hemorrhagic fever caused by ticks carried by Korean squirrels. ///The Navy Times/

240. AGRICULTURE STUDY SHOWS RISING GOOD DIET IN U. S. :

In a large scale survey the Department of Agriculture has found a greatly improved diet as a result of increased income and public understanding of the importance of good diet.

Largest increased vitamin intake noted was iron, three of the B vitamins, i. e. thiamine, niacin and riboflavin. On the low side of the list was calcium and vitamin C. It was found that the higher the income the higher the intake of vitamin C -- found in fruits and rich vegetables.

Statistical reports are now being readied and copies of Household Food Survey No. 6 are free from the Dept. of Agriculture. ///Ag./

ORDNANCE

241. ADMIRAL SIDES ADDRESSES ORDNANCE MEETING:

Speaking at a spring luncheon of the American Ordnance Society at the Army Navy Country Club in Arlington on April 18, R/Adm. John H. Sides, deputy to the special assistant for guided missiles of the Secretary of Defense, told interested listeners--including DATA's editor--that: 1. Missiles will eventually be much cheaper for armed forces to employ than manned aircraft. ... no training, no proficiency flying.

2. Flight testing of both IRBM and ICBM missiles is now a matter of routine.

3. There is emerging a trend of contractor teaming in the field of missile engineering. An airframe manufacturer teams up with an electronics manufacturer for a blend of separate skills. In this part of his talk Adm. Sides mentioned various missiles and their contractors including the little known HAWK, which he mentioned was being built by Raytheon and Northrup. (The HAWK is the Army's newest missile and is an anti-aircraft ground-to-air weapon to be used against low-flying enemy air weapons).

4. New missiles were being developed to replace both the NIKE and the TERRIER.

Copies of the complete Sides address of 4-18-57 are available.
Service charge \$1. //RAdm. Sides/

242. NEW FUZE TEST FACILITY FOR USAF AND CONTRACTORS:

A new fuze testing facility recently began operations at the Air Force Armament Center, Eglin AFB, where fuzes will undergo rigorous examinations before being accepted by the Air Force and other agencies of the Department of Defense. DOD contractors can use the Florida center which is responsible for development and testing of all high explosive ammunition, bomb, rocket and missile fuzes designed for Air Force use.

Additional information available. No charge. ///ARDC 0405 102/

243. NEW FUZE MECHANISM PROVIDES RELIABLE DELAY:

After five years of concentrated effort, a new safety delay for VT fuzes has been manufactured, tested and approved. Called the mercury delay unshorter, the device is the result of joint research by the Naval Ordnance Lab and Sylvania Electric. The new fuze is comparatively simple in design. It is essentially two chambers separated by a porous material. The top chamber contains mercury which shorts out two wire leads for safety. Reprint of complete article \$1. //NOL/

244. NUCLEAR SHIP POWER:

AEC and Maritime Administration have contracted for six design feasibility studies of four reactor systems, aiming at finding most promising reactor concepts for further development as propulsion power for merchant ships. ///MSTS/

245. SHIP NAVIGATION:

Science of navigation after ten centuries still is not accurate for long range, surface-to-surface missile launching. A perfected system would help all types of ships and also result in more accurate chart and map making. USS COMPASS ISLAND assists Navy in evaluation of a navigational system independent of shore-based aids. Ship inertial navigation system is supplemented by celestial trackers and special sonar equipment. ///MSTS/

246. GIANT SHIP-MOTION SIMULATOR ASSISTS NAVY MISSILES:

The Loewy-Hydropress Division of the Baldwin-Lima-Hamilton Corporation, New York, has been awarded a research and development contract for approximately \$2 million to design, build and install a huge ship-motion simulator for the performance evaluation of the Navy's new Fleet Ballistic Missile, Navy announced April 20. ///Pent. OPI 0420/

247. NAVY SUBS:

Navy's third nuclear submarine, USS SKATE, will be launched on May 16 at General Dynamics Electric Boat plant, Groton. Atomic reactor for SKATE is built by Westinghouse. USS NAUTILUS started on second nuclear core April 11. ///Gen. Dy. and Pent. OPI 0411/

248. SHIP CONSTRUCTION:

First "jumboizing" in a U. S. shipyard was completed in 36 days by Bethlehem Steel at Baltimore yard. Gulf Oil ship GULFMEADOWS was cut into three sections and then bow and stern were welded to larger midbody, adding cargo capacity. Government interested. ///AMMI 04/

249. NAVAL INSTITUTE PROCEEDINGS PRINTS OIL ARTICLE:

"Oil Transportation by Water," by Cdr. L. C. Kendall, appears in the April issue of the Naval Institute Proceedings. ///USNIP/

TRANSPORTATION

250. METHOD DEvised TO MEASURE TIRE TEMPERATURES:

Longer wearing tires, less chance of blow-outs can result from observations by tire engineers with a new direct method of determining tire operating temperatures. The procedure, developed by the National Bureau of Standards, uses a copper thermocouple inserted through the tire valve and gives more accurate temperature results than were previously possible with any other system. High temperatures affect the service life of tires and thus the choice of materials used in them. For that reason the new measuring device is of significant value to users and manufacturers of tires. Photo copies of the five-page NBS report available. \$2 service charge. ///NBS/

251. EIGHT WHEEL TRUCK TESTED BY ARMY:

Three different models of an experimental 8x8 5-ton cargo truck are under test. Officially designated the XM282 series, the cab-over-engine design of the vehicles permits a considerable reduction in length and weight without diminishing the available cargo space.

Although many components used in the XM282 series are already in the supply system--being used in the standard M34 2½-ton and M41 5-ton trucks--the new 8x8 vehicles represent a radical departure from the previous program of merely improving tried and approved basic designs. The three models differ only in cargo bodies and transmissions. ///Military Review 04-66/

252. TRUCK-MOUNTED AUGER:

Construction equipment specialists at Ft. Belvoir R&D Lab are using an earth auger mounted on a truck to drill frozen blocks of silt and sandy loam. Developed by the H. B. Williams Mfg. Co. of Dallas, the auger could be used for field fortifications, waste disposal pits and underground storage facilities in the Arctic and Antarctic wastelands.

Additional information available. No charge. ///Ft. Belvoir 0419/

253. FIRE TRUCK BUILT TO FIGHT NON-CONVENTIONAL BLAZES:

A highly mobile aluminum fire truck, capable of operating under temperature changes from a low of 65 degrees below zero (F) to as high as 125 degrees (F) above, has been built to fight fires involving non-conventional fuels and fuel storage tank farms, as well as large scale blazes. Developed by Army Engineers, the truck has a turret to combat flames inaccessible by hose. Photo copy of release \$1. ///Ft. Belvoir /

MAGAZINE PREVIEW & REVIEWS

DATA has been making arrangements with other magazines to see page proofs and contents prior to publication so that we may review and point out articles of interest to our readers.

PREVIEWS

MISSILES & ROCKETS (Available May 10, 1957)

Entire May issue will be devoted to modern torpedoes and underwater missiles. Lead story begins, "With the advent of the true submersible--atomic submarines that can cruise at high underwater speed for weeks on end--and with the growing practical knowledge of guided missiles of all types, the oceans assume a new strategic significance."

SIGNAL (Available May 15, 1957)

"Modern Press Communications," is look at members of U.S. communications industry and at the ways in which, to keep Americans informed, they perform the vitally important job of transmitting international and domestic press. "Western Electronics Looks Ahead" by H. Leslie Hoffman of Hoffman Electronics, gives predictions of what the West Coast will produce and what the future holds for western contractors. "Blue Boxes and Blue Airplanes" is a "reading" on future expectations for the electronics industry in Navy dealings based on a glance at the past.

REVIEWS

NATION'S BUSINESS (April 1957)

"Missiles Open Broad New Market," by Seabrook Hull, says development of new weapons has produced versatile civilian products and tells of many missile needs from private industry.

NEWSWEEK (April 22, 1957)

"Periscoping the World" says Lockheed U-2 high-altitude planes have been making 65,000-foot flights near Wiesbaden to catch samples of stratosphere to determine when Russians set off atomic bombs.

"Periscoping the Nation" states that despite Britain's cutback in forces, U. S. will go ahead with its own manpower reductions -- 300,000 by 1961. . Guards who accompanied Convair ATLAS ICBM on journey from California to Florida amazed at lack of public curiosity.

CHARTS & REPORTS

The following are new reports made available to the public only very recently. Selection for placement on this page has been made on the basis of those papers which we felt would be of most significance to our readers:

255. The Anatomy of Flames. K. G. Williams, H. W. Carhart, J. E. Johnson. NRL. Feb. 1956. 7 pages. Photo copies \$2. Order DATA 255 from DATA, Box 6026, Arlington 6, Va.
256. Department of the Army Chiefs and Executives. Desk chart prepared by the Adjutant General's Office. 17 x 22 inches. Block diagram breakdown of Army executive branches in DOD with names, building and room numbers, phone extensions, titles of offices. April 1, 1957. Service charge \$1. Order DATA 256 from DATA, Box 6026, Arlington 6, Va.

COMMERCE REPORTS:

The following reports may be ordered directly from the Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Do not send orders for these reports to DATA. Checks for the following reports should be made payable to the Treasurer of the United States:

- PB 111729. Development of Subminiature High Temp. Capacitors, Balco Research Laboratories for WADC, March 1955. 79 pages, price \$2. Subj: Teflon superior to mica for capacitors. Order from OTC Commerce.
- PB 121466. Creep Buckling of Integrally Stiffened Aluminum Alloy. C. W. King, North Am. Av. for WADC. May 1956. 70 pages. \$1.75. Subj: Time until failure studies for stiffened aluminum panels. Order from OTC Commerce.
- PB 121667. Low-Alloy Aircraft Steels Heat Treated to High Strength. G. Sachs, Syracuse U. for WADC. July 1954. 80 pages. \$2. Subj: Discusses fatigue, hydrogen embrittlement, and stress. Order from OTC Commerce.
- PB 121601. Corrosion of Titanium. Stough, Fink, Peoples. Battelle Memorial Inst. Oct. 1956. 184 pages. \$4.75. Other Battelle reports on titanium: PB 121603 General Summary of Titanium. \$2.25. PB 121600 Elastic Constants in Structures with Titanium. \$1. Order from OTC Commerce.



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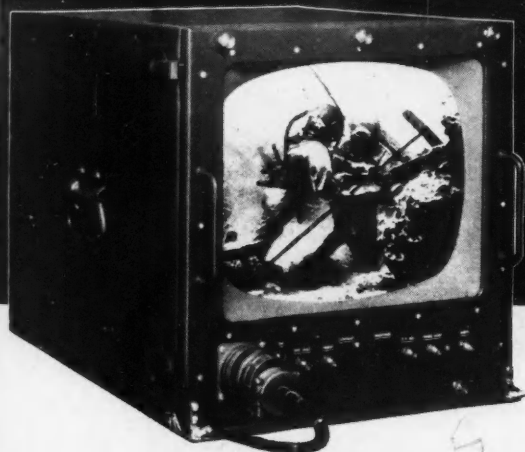
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